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Comparisons of average crystalline dimension of Muga and Eri silk in degummed and undegummed condition in winter season.

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Abstract: The Muga silk cloth can be nominated to be called the "King of the fabric" due to the strongest, durability, equisite elegant lustrous natural golden colour (Gogoi and Goswami,1998) . Muga silk is strongest of all the natural silks. The aim of this paper is to study the average crystalline dimension of Muga and Eri silk in degummed and undegummed condition in winter season and the value for Muga and Eri is 7.2A^0,8.1 A^0.13.1 A^0,14.6, A^0.

Key words: Average crystalline dimension

Introduction:

Assam is famous for its scenic beauty embedded with nature's gift of flora and fauna .Especially the tea gardens in Assam is one remarkable sight to behold. Similarly, Muga silk is endemic to Assam which odds to its royalty and uniqueness. The golden silk or Muga silk has been tradition. Science the beginning of ancient times in Assam and now it surfaces as trend in the Fashion world.

There are three major primitive varieties of silks that originated from Assam. The golden Muga silk, pat silk and Eri silk rules the handloom industries in Assam a endow emerges as a soaring export material.

Muga silk is produced by the Muga silkworms, scientifically known as Antherassamensis, which are fed on som (Machala's bombycina) and sualu (litsaea polyanthus) leaves. Golden yellow silk thread is derived which is rare with its texture, Lester and durability.

Eri silk also known as E*rrandi* or Endi is derived from the silk worm philosamiaricin and samiaricini. Pricini feeds on castor oil plant (ricinus communis) leaves and hence know as castor silk. It is believed that the name "era" derived from the word "era" which means castor plant in Assamese .It is known as a peace silk or "nonviolent silk "as the months are not destroyed in the cocoon but are allowed to emerge and the cocoons are spun rather than ruled to produce the Eri silk yarn.

Material and method:

The required sample means cocoons of Muga and Eri is collected from central silk (Regional Muga research station), Boko.

Method:

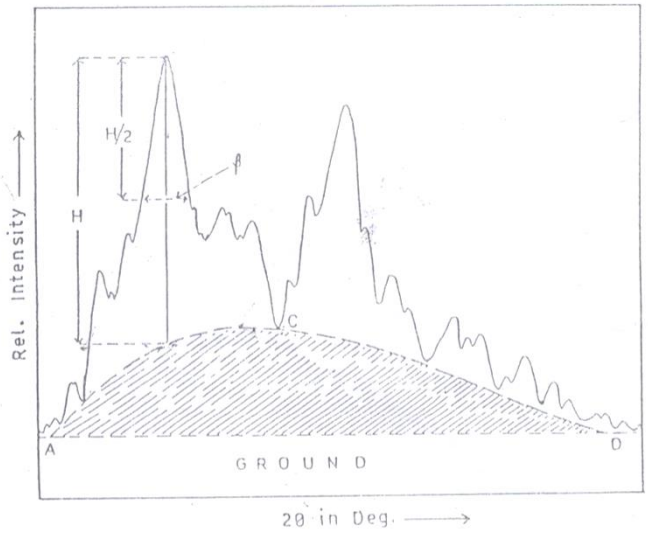
For XRD counter diffraction method is used and for measuring average crystalline dimension (L) Bragg's formula is used

$$L=k\lambda\backslash\beta\cos\theta$$

Where k= factor of the crystallite shape, this factor is usually assumed as 9.

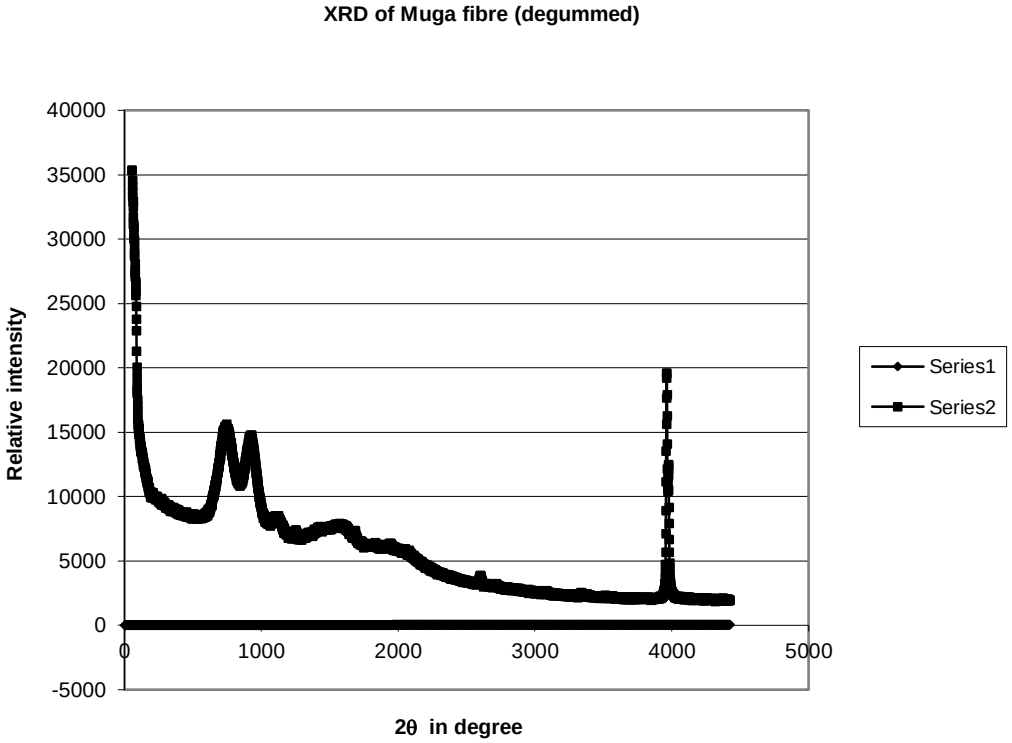
Λ= wave length, β=line broadeningθ= Bragg's angle.

The brooding of the line,β(mm) is determined at the level of half the height of their intensity curve maximum in the crystalline .Each line of the diffractogram corresponds to the size of the crystallite in a certain crystallographic dn. By measuring several dimension of the crystallites in space crystallites. A diagrammatic representation of the measurement of β is displaced in fig ,where the three section the crystalline ,amorphous and dispersion (ground)are outline on the diffractogram .The area under the curve ACD (shaded area) corresponds to the amorphous section while the areas of the diffractogram maximum result to the crystalline section.

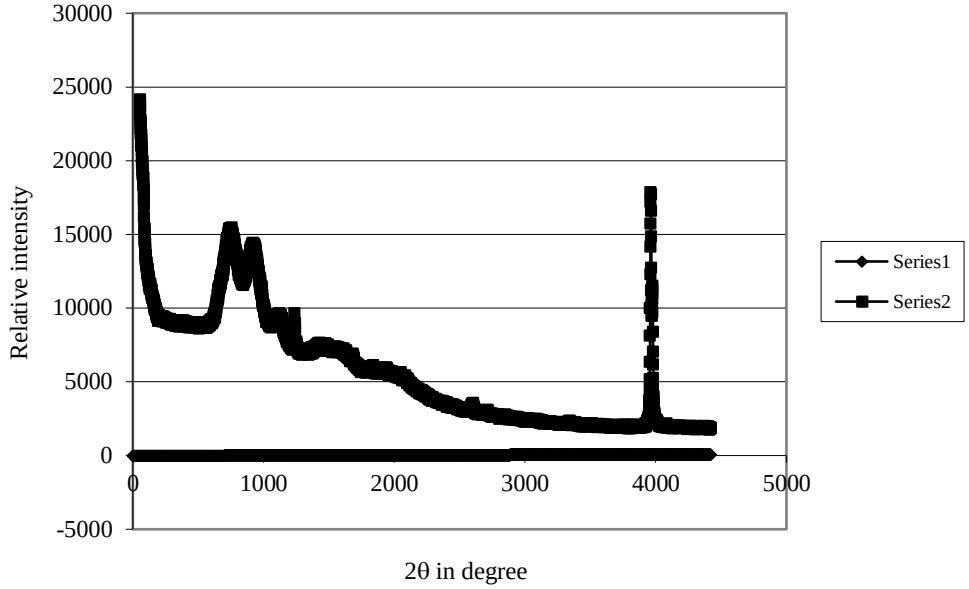


Result and Discussion:

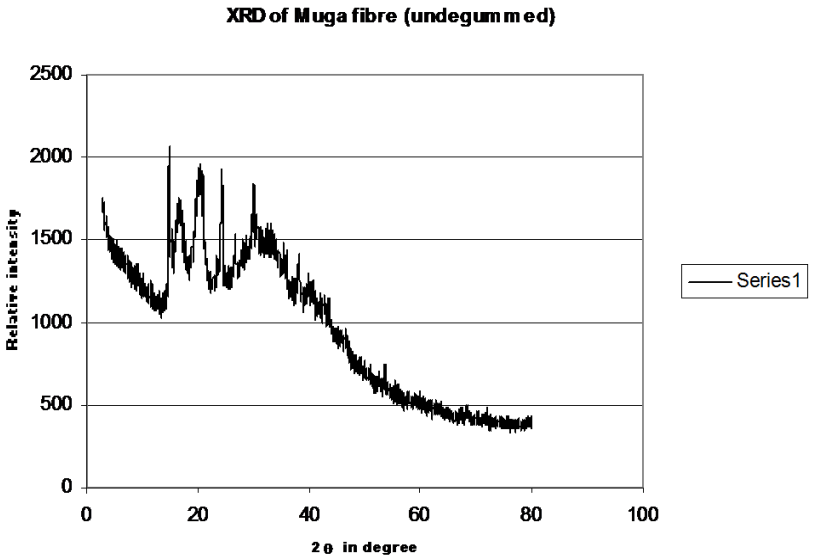
XRD of Muga and Eri silk in degummed and undegummed condition in winter season is given below.



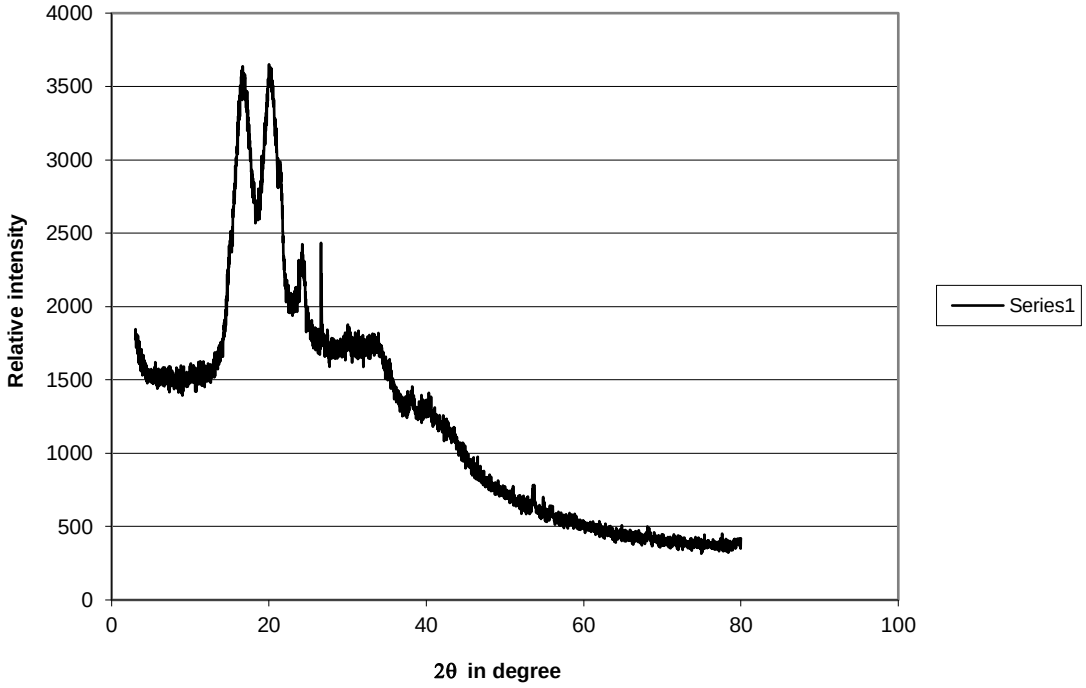
XRD of Eri fibre (degummed)



X-ray diffractograms for Undegummed Muga



XRD of Eri fibre (undegummed)



Undegummed		Degummed	
Muga	Eri	Muga	Eri
$13.1A^0$	$14.6A^0$	$7.2A^0$	$8.1A^0$

The average crystalline dimension of Eri silk in winter season is 1.5% more than Muga silk in undegummed condition and for degummed condition the value of average crystallinedimension for Eri silk is 0 .9% more than Muga silk.

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